Volume 256 November 1993

CONTENTS

A numerical investigation of the coherent vortices in turbulence behind a backward-facing step. ARISTEU SILVEIRA NETO, DOMINIQUE GRAND, OLIVIER MÉTAIS and MARCEL LESIEUR *page* 1

Settling velocity and concentration distribution of heavy particles in homogeneous isotropic turbulence. LIAN-PING WANG and MARTIN R. MAXEY 27

Experimental investigation of periodic flow in curved pipes. CHRIS J. SWANSON, STEVEN R. STALP and RUSSELL J. DONNELLY 69

A critical-layer analysis of the resonant triad in boundary-layer transition: nonlinear interactions. REDA R. MANKBADI, XUESONG WU and SANG SOO LEE 85

Near-contact thermocapillary motion of two non-conducting drops. MICHAEL LOEWENBERG and ROBERT H. DAVIS 107

Unsteady natural convection in a cavity with non-uniform absorption of radiation. MICHAEL J. COATES and JOHN C. PATTERSON 133

Direct simulations of low-Reynolds-number turbulent flow in a rotating channel. REIDAR KRISTOFFERSEN and HELGE I. ANDERSSON 163

Monte Carlo simulation of the Taylor–Couette flow of a rarefied gas. STEFAN STEFANOV and CARLO CERCIGNANI 199

The one-dimensional adiabatic flow of equilibrium gas–particle mixtures in variable-area ducts with friction. GUIDO BURESTI and CLAUDIO CASAROSA 215

Mixing of a viscoelastic fluid in a time-periodic flow. T. C. NIEDERKORN and J. M. OTTINO 243

A new mechanism for oblique wave resonance in the 'natural' far wake. C. H. K. WILLIAMSON and A. PRASAD 269

Acoustic forcing of oblique wave resonance in the far wake. C. H. K. WILLIAMSON and A. PRASAD 315

Nonlinear drift interactions between fluctuating colloidal particles: oscillatory and stochastic motions. E. J. HINCH and LUDWIG C. NITSCHE 343

Fundamental–subharmonic interaction: effect of phase relation. M. R. HAJJ, R. W. MIKSAD and E. J. POWERS 403

Surface-wave generation revisited. JOHN MILES 427

Compressibility effects on the growth and structure of homogeneous turbulent shear flow. G. A. BLAISDELL, N. N. MANSOUR and W. C. REYNOLDS 443

Unsteady flow at a stagnation point. N. RILEY 487

Damping and reflection coefficient measurements for an open pipe at low Mach and low Helmholtz numbers. M. C. A. M. PETERS, A. HIRSCHBERG, A. J. REIJNEN and A. P. J. WIJNANDS 499

Volume 256 November 1993

CONTENTS

A numerical investigation of the coherent vortices in turbulence behind a backward-facing step. ARISTEU SILVEIRA NETO, DOMINIQUE GRAND, OLIVIER MÉTAIS and MARCEL LESIEUR *page* 1

Settling velocity and concentration distribution of heavy particles in homogeneous isotropic turbulence. LIAN-PING WANG and MARTIN R. MAXEY 27

Experimental investigation of periodic flow in curved pipes. CHRIS J. SWANSON, STEVEN R. STALP and RUSSELL J. DONNELLY 69

A critical-layer analysis of the resonant triad in boundary-layer transition: nonlinear interactions. REDA R. MANKBADI, XUESONG WU and SANG SOO LEE 85

Near-contact thermocapillary motion of two non-conducting drops. MICHAEL LOEWENBERG and ROBERT H. DAVIS 107

Unsteady natural convection in a cavity with non-uniform absorption of radiation. MICHAEL J. COATES and JOHN C. PATTERSON 133

Direct simulations of low-Reynolds-number turbulent flow in a rotating channel. REIDAR KRISTOFFERSEN and HELGE I. ANDERSSON 163

Monte Carlo simulation of the Taylor–Couette flow of a rarefied gas. STEFAN STEFANOV and CARLO CERCIGNANI 199

The one-dimensional adiabatic flow of equilibrium gas–particle mixtures in variable-area ducts with friction. GUIDO BURESTI and CLAUDIO CASAROSA 215

Mixing of a viscoelastic fluid in a time-periodic flow. T. C. NIEDERKORN and J. M. OTTINO 243

A new mechanism for oblique wave resonance in the 'natural' far wake. C. H. K. WILLIAMSON and A. PRASAD 269

Acoustic forcing of oblique wave resonance in the far wake. C. H. K. WILLIAMSON and A. PRASAD 315

Nonlinear drift interactions between fluctuating colloidal particles: oscillatory and stochastic motions. E. J. HINCH and LUDWIG C. NITSCHE 343

Fundamental–subharmonic interaction: effect of phase relation. M. R. HAJJ, R. W. MIKSAD and E. J. POWERS 403

Surface-wave generation revisited. JOHN MILES 427

Compressibility effects on the growth and structure of homogeneous turbulent shear flow. G. A. BLAISDELL, N. N. MANSOUR and W. C. REYNOLDS 443

Unsteady flow at a stagnation point. N. RILEY 487

Damping and reflection coefficient measurements for an open pipe at low Mach and low Helmholtz numbers. M. C. A. M. PETERS, A. HIRSCHBERG, A. J. REIJNEN and A. P. J. WIJNANDS 499

Azimuthal instability of divergent flows. VLADIMIR SHTERN and FAZLE HUSSAIN 535

The hydrodynamic force on a rigid particle undergoing arbitrary time-dependent motion at small Reynolds number. PHILLIP M. LOVALENTI and JOHN F. BRADY 561

The force on a sphere in a uniform flow with small-amplitude oscillations at finite Reynolds number. PHILLIP M. LOVALENTI and JOHN F. BRADY 607

Vortex rings impinging on walls: axisymmetric and three-dimensional simulations. PAOLO ORLANDI and ROBERTO VERZICCO 615

Buoyancy-driven interactions between two deformable viscous drops. MICHAEL MANGA and H. A. STONE 647

Nonlinear temporal–spatial modulation of near-planar Rayleigh waves in shear flows: formation of streamwise vortices. XUESONG WU 685

REVIEWS

Vortex Dynamics, by P. G. Saffman 720

Nonlinear Random Waves and Turbulence in Nondispersive Media: Waves, Rays, and Particles, by S. N. Gurbatov, A. N. Malakhov and A. I. Saichev 722

INDEX TO VOLUME 256 724

SCHEDULE OF INTERNATIONAL CONFERENCES ON FLUID MECHANICS 726